

Amendments to the Claims:

Misnumbered new claims 121-151 have been renumbered as new claims 122-152.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-121 (canceled)

122. (currently amended) A method for forming chains of edgelets, the edgelets being disposed within a two-dimensional array, each edgelet having a position and a direction, the method comprising:

for each edgelet, providing a data structure including data slots for storing: edgelet position, edgelet direction, a right link to a right-neighboring edgelet, and a left link to a left-neighboring edgelet;

for each edgelet at a position in the two-dimensional array, examining neighboring positions in two phases so as to determine which neighboring positions contain a neighboring edgelet which can be connected to the edgelet at the position, the examining occurring in two phases, a first phase for identifying a right-neighboring edgelet, and a second phase for identifying a left-neighboring

edgelet, each phase including examination of an equal number of different neighboring positions; and

for each edgelet, storing from the first phase one of a right link and a null link in a first data slot of the data structure of the edgelet, and storing from the second phase one of a left link and a null link in a second slot of the data structure of the edgelet, thereby forming at least one chain of edgelets.

123. (new) The method of claim 122, wherein each phase includes examination of four neighboring positions.

124. (new) The method of claim 122, wherein each phase includes examination of the different neighboring positions in a particular order.

125. (new) The method of claim 124, wherein the particular order is dependent upon the direction of the edgelet at the position in the two-dimensional array.

126. (new) The method of claim 125, wherein the direction of the edgelet falls within east and north-east directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the first phase is: north, west, north-west, north-east.

127. (new) The method of claim 125, wherein the direction of the edgelet falls within north-east and north directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the first phase is: west, north, north-west, south-west.

128. (new) The method of claim 125, wherein the direction of the edgelet falls within east and north-east directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the second phase is: south, east, south-east, south-west.

129. (new) The method of claim 125, wherein the direction of the edgelet falls within north-east and north directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the second phase is: east, south, south-east, north-east.

130. (new) The method of claim 126, wherein the first neighboring edgelet found is deemed to be the left neighbor.

131. (new) The method of claim 127, wherein the first neighboring edgelet found is deemed to be the right neighbor.

132. (new) The method of claim 128, wherein the first neighboring edgelet found is deemed to be the left neighbor.

133. (new) The method of claim 129, wherein the first neighboring edgelet found is deemed to be the right neighbor.

134. (new) The method of claim 125, wherein the direction of the edgelet falls within a rotation of east and north-east directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the first phase is the rotation of: north, west, north-west, north-east.

135. (new) The method of claim 125, wherein the direction of the edgelet falls within a rotation of north-east and north directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the first phase is the rotation of: west, north, north-west, south-west.

136. (new) The method of claim 125, wherein the direction of the edgelet falls within a rotation of east and north-east directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the second phase is the rotation of: south, east, south-east, south-west.

137. (new) The method of claim 125, wherein the direction of the edgelet falls within a rotation of north-east and north directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the second phase is the rotation of: east, south, south-cast, north-east.

138. (new) The method of claim 134, wherein the first neighboring edgelet found is deemed to be the left neighbor.

139. (new) The method of claim 135, wherein the first neighboring edgelet found is deemed to be the right neighbor.

140. (new) The method of claim 136, wherein the first neighboring edgelet found is deemed to be the left neighbor.

141. (new) The method of claim 137, wherein the first neighboring edgelet found is deemed to be the right neighbor.

142. (new) The method of claim 124, wherein each phase includes examination of the different neighboring positions in a particular order that favors orthogonal neighbors over diagonal neighbors.

143. (new) The method of claim 124, wherein each phase includes examination of the different neighboring positions in a particular order so as to provide a chain having a stair-step pattern for boundaries not aligned with grid axes of the two-dimensional array.

144. (currently amended) The method of claim 122, further comprising:
~~connecting each edgelet at a position in the two-dimensional array with its right neighboring edgelet and its left neighboring edgelet; and~~
~~performing a consistency check for each edgelet in a the at least one chain so-formed.~~

145. (new) The method of claim 144, wherein performing a consistency check includes:

~~verifying that the right neighbor of an edgelet's left neighbor is the edgelet itself.~~

146. (new) The method of claim 144, wherein performing a consistency check includes:

verifying that the left neighbor of an edgelet's right neighbor is the edgelet itself.

147. (currently amended) The method of claim 145, wherein when the consistency check fails, ~~each link is~~ both links are replaced by a null link.

148. (currently amended) The method of claim 146, wherein when the consistency check fails, ~~each link is~~ both links are replaced by a null link.

149. (new) The method of claim 122, wherein the edgelets are disposed such that only one edgelet is disposed within each element of the two-dimensional array.

150. (new) The method of claim 122, wherein the edgelets are disposed such that more than one edgelet is disposed within some elements of the two-dimensional array.

151. (new) The method of claim 150, wherein one edgelet is selected within each element of the two-dimensional array having more than one edgelet.

Appl. No. 10/705,564
Amdt. dated 04/18/2005
Reply to Office action of 12/16/2004

152. (canceled)